SECTION 5.3000. GEOLOGIC HAZARDS OVERLAY DISTRICT (/GHO)

Section 5.3005. Purpose

The ~~intent~~ purpose of the ~~geologic hazards overlay~~ Geologic Hazards Overlay (GHO) is to minimize building hazards and threats to life and property~~ that may be created by landslides, ocean flooding and erosion, weak foundation soils, and other hazards as identified and mapped by the County~~ in areas of identified geologic hazards. This purpose is achieved by basing County decisions on accurate geologic and soils information prepared by qualified professionals.

The provisions and requirements of this section are intended to provide for identification and assessment of risk from geologic hazards, and to establish standards that limit overall risk to the community from identified hazards to a level acceptable to the community. Development in identified hazard areas is subject to increased levels of risk, and these risks must be acknowledged and accepted by present and future property owners who proceed with development in these areas.

Section 5.3010. Applicability

This section applies to all development in the following potentially hazardous areas:

~~1) Areas subject to mass wasting including:~~

~~(A) Active landslides, inactive landslides, landslide topography and mass movement topography identified in the Oregon Department of Geology and Mineral Industries (DOGAMI) Bulletins 74 and 79;~~

~~(B) Faults including definite, indefinite, inferred and concealed in the Oregon Department of Geology and Mineral Industries (DOGAMI) Bulletins 74 and 79;~~

~~(C) All areas identified in the report, "A Field Inventory of Geologic Hazards from Silver Point to Cove Beach, Clatsop County, Oregon", prepared by Martin Ross in 1978, as needing site specific investigations;~~

~~2) Areas subject to wave attack, including:~~

~~(A) All oceanfront lots; and~~

~~(B) The beach and dune hazard area as defined in Section 5.4020.~~

~~3) Areas with compressible soils identified in the Soil Survey of Clatsop County (SCS) and referenced in Clatsop County's Comprehensive Plan Background Report, Natural Hazards.~~

1) Areas subject to mass wasting, including:

(A) All lands partially or completely within an inventoried landslide or scarp flank as depicted in the following studies:

i. *Landslide Inventory, Susceptibility Maps, and Risk Analysis for the City of Astoria, Clatsop County, Oregon,* Oregon Department of Geology and Mineral Industries (DOGAMI), Open-File Report O-13-05.

ii. *Landslide Inventory Map of the Coastal Portion of Clatsop County, Oregon,* DOGAMI, Open-File Report O-21-10.

iii. *Landslide Hazard and Risk Study of the U.S. Highway 30 Corridor, Clatsop and Columbia Counties, Oregon*, DOGAMI, Open-File Report O-12-06.

(B) All lands partially or completely within "high" and "moderate" susceptibility to shallow landslides, deep landslides, or any combination thereof, as depicted in the following studies:

i. *Landslide Inventory, Susceptibility Maps, and Risk Analysis for the City of Astoria, Clatsop County, Oregon,* DOGAMI, Open-File Report O-13-05.

ii. *Landslide Hazard and Risk Study of the U.S. Highway 30 Corridor, Clatsop and Columbia Counties, Oregon*, DOGAMI, Open-File Report O-12-06.

(C) For any area outside the boundaries of the studies listed in (A) and (B), above, all lands partially or completely within categories of "very high" susceptibility to landslides in the *Statewide Landslides Susceptibility Overview Map of Oregon*, DOGAMI, Open-File Report O-16-02.

(D) Development sites where the area of land disturbing activities has an average existing slope of 20% or greater.

2) Ocean Front Lots, as defined in Section 1.0500 (see "Lot Types").

3) The Beach and Dune Hazard Area as defined in Section 5.4020.

4) Any other documented geologic hazard area on file, at the time of inquiry, in the office of the Clatsop County Community Development Department.

~~4)~~5) The publications referenced above are not intended to be used as site-specific analysis tools. The County will use these publications to identify when a Geologic Hazard Permit is required on a property prior to development. The determination of whether a property is located in one of the above referenced potentially hazardous areas shall be made at the sole discretion of the Community Development Director. The mapping that forms the basis for the identification of the above areas may be generalized in nature. A specific site may not include the characteristics for which it is mapped. In these circumstances, the Director may grant a waiver from the requirements of Section 5.3000. The waiver shall be in the form of a written finding. The finding shall be based on a report, from a professional specified in Section 5.3020, detailing the basis for the determination that the site does not contain the identified potentially hazardous geologic condition.

Section 5.3015. Geologic Hazard Permit Requirements

All persons proposing any activity requiring a development permit on property located in potentially hazardous areas identified in Section 5.3010 shall obtain a ~~geologic hazard permit~~Geologic Hazard Permit.

1) An application for a ~~geologic hazard permit~~ Geologic Hazard Permit shall be on forms provided by the County and shall include a ~~geotechnical report~~Geologic Hazard Report prepared in conformance with the requirements of Section 5.3020.

2) Before a development permit can be issued, the ~~geotechnical report~~Geologic Hazard Report must be approved as part of the development permit approval process.

(A) Where a geotechnical report recommends that additional site investigations, such as borings or test pits, are undertaken, the application for ~~a geologic hazard permit~~Geologic Hazard Permit will be deemed incomplete until the results of those investigations have been provided to the County.

(B) Where an application is made for ~~a conditional use permit, a variance,~~ a subdivision~~, a partition,~~ or a planned development located in an area identified in Section 5.3010, a ~~geotechnical report~~Geologic Hazard Report in conformance with Section 5.3020 shall be prepared. The Director may also require a ~~geotechnical report~~Geologic Hazard Report in conjunction with a proposed zone change.

3) Application for a geologic hazard permit may be made concurrently with an application for a development permit.

4) The approved site investigation report shall be referred to in deed and other documents of sale and shall be recorded with the record of deeds.

5) Exemptions: The following development activities are exempt from the requirement for a Geologic Hazard Permit:

(A) Maintenance, repair, or alterations to existing structures that do not alter the building footprint or foundation and do not constitute substantial improvement as defined in Section 1.0500.

(B) Exploratory excavations under the direction of a certified engineering geologist or registered geotechnical engineer;

(C) Construction of structures for which a building permit is not required;

(D) Excavation which is less than two feet in depth, or which involves less than twenty-five cubic yards of volume;

(E) Fill that is less than two feet in depth or that involves less than twenty-five cubic yards of volume;

(F) Yard area vegetation maintenance and other vegetation removal on slopes less than 20%;

(G) Removal of trees smaller than 8 inches diameter breast height (dbh);

(H) Removal of trees larger than 8 inches dbh provided the canopy area of the trees that are removed in any one-year period is less than 25% of the lot or parcel area;

(I) Forest operations subject to regulation under ORS 527 (the Oregon Forest Practices Act);

(J) Maintenance and repair of public and private roads, streets, parking lots, driveways, culverts, and utility lines, provided the work does not extend outside the existing right-of-way boundary;

(K) Maintenance and repair of utility lines, and the installation of individual utility service connections;

(L) Emergency response activities intended to reduce or eliminate an immediate danger to life, property, or flood or fire hazard; and

(M) Beachfront protective structures subject only to regulation by the Oregon Parks and Recreation Department under OAR Chapter 736, division 20.

Section 5.3020 ~~Geotechnical~~ Geologic Hazard Report Requirements

~~For areas identified in Section 5.3010(1) and 5.3010(2), the geotechnical report shall be prepared by a certified engineering geologist or a registered professional geologist. If a geotechnical report is prepared~~

~~by a geologist and structural recommendations are incorporated into that report, those recommendations, must be made in consultation with an engineering geologist, structural engineer, or civil engineer.~~

~~1) For areas identified in Section 5.3010(1), the geotechnical report shall:~~
~~(A) Identify the hazards to life, public and private property which may be caused by mass movement (landsliding and sloughing), soil erosion or deposition, and earthquakes;~~
~~(B) Identify the hazards to life, public and private property, and the natural environment which may be caused by the proposed use and other human activities;~~
~~(C) Describe how the proposed development or use will be adequately protected from geologic hazards, including landsliding and sloughing, soil erosion or deposition, and earthquakes; and~~
~~(D) Describe how the proposed development is designed to minimize the adverse effects it might have on the site and adjacent areas.~~
~~2) For areas identified in Section 5.3010(2), and in addition to the standards identified in Section 5.3020(2), the geotechnical report shall identify the hazards to life, public and private property which may be caused by wind erosion or accretion, wave undercutting (erosion), and ocean overtopping (flooding, including tsunami),~~
~~3) For areas identified in Section 5.3010(1) and 5.3010(2), the geotechnical report shall describe how the proposed development provides for temporary and permanent stabilization and the planned maintenance of new and existing vegetation. Existing stabilizing vegetation, particularly trees, shall not be removed on slopes of 20% or greater.~~
~~4) For areas identified in Section 5.3010(1) and 5.3010(2), the geotechnical report shall be prepared in conformance with the document "Clatsop County – Geotechnical Report Content Standards".~~
~~5) For areas identified in Section 5.3010(3), the geotechnical report shall be prepared by a certified engineering geologist, soils engineer, or civil engineer. Geotechnical reports prepared for areas identified in Section 5.3010(3) shall incorporate specific construction and structural recommendations to address the soil characteristics of the site. Where pertinent, the discussion of specific construction and structural recommendations shall include: site preparation such as compaction or replacement of existing soils, bearing loads and the corresponding amount of settlement, steps to be taken with respect to ground and surface water, special foundation requirements, and foundation recommendations based on bearing capacity, design criteria, and the effect of adjacent loads.~~

~~For all areas identified in Section 5.3010, the geotechnical report shall be prepared in conformance with the document "Clatsop County – Geotechnical Report Content Standards".~~

For the purposes of Section 5.3000, Geologic Hazard Report refers to engineering geologic reports, geotechnical reports, and geotechnical engineering reports.

1) Geologic Hazard Reports required pursuant to this section shall be prepared consistent with standard geologic practices employing generally accepted scientific and engineering principles, and shall at a minimum contain the applicable provisions outlined in the Oregon State Board of Geologist Examiners publication "Guidelines for Preparing Engineering Geologic Reports," 2nd Edition, 5/30/2014 or other published best practice guidelines for engineering geologic or geotechnical engineering reports, consistent with current scientific and engineering principles. Reports shall reference the published guidelines upon which they are based.
2) For Ocean Front Lots, Geologic Hazard Reports shall address the criteria and development standards of the Beach and Dune Overlay District (BDO) listed in Section 5.4000, as applicable.
3) Geologic Hazard Reports required by this section shall include the following from the preparer(s) of the report:
    (A) A statement that all the applicable content requirements of Section 5.3020 have been addressed or are not applicable to the review. An explanation shall be accompanied with any requirement identified as not applicable;
    (B) A description of the qualifications of the professional(s) that prepared the report. If multiple licensed professionals contributed to the report, each professional shall individually sign and stamp their own work products; and
    (C) A statement by the preparer(s) that they have the appropriate qualifications to have completed the report and all its contents.
~~1)~~4) All Geologic Hazard Reports are valid for purposes of meeting the requirements of Section 5.3000 for a period of five (5) years from the date of preparation. Such reports are valid only for the development plan addressed in the report. Clatsop County assumes no responsibility for the quality or accuracy of such reports. Within that five-year period, the Community Development Director can require at their discretion an addendum by a qualified licensed geo-professional certifying that site conditions have not changed from the original report. If site conditions have changed, a new Geologic Hazard Report shall be required.[IS1]

Section 5.3025. Geologic Hazard Permit Review

An application for a ~~geologic permit~~Geologic Hazard Permit shall be reviewed under a Type I procedure. Decisions shall be based on compliance with the following standards~~.~~:

1) ~~A geologic hazard permit shall be approved by the Director if:~~ The Geologic Hazard Report shall satisfy the standards listed in Section 5.3020; and
    (A) The conclusions of the ~~geotechnical report~~Geologic Hazard Report support a finding that there are no adverse effects of the site's geologic characteristics on the proposed development and the proposed site modifications will not adversely affect geologic conditions and processes in the immediate area~~.~~; or
    (B) The conclusions of the ~~geotechnical report~~Geologic Hazard Report support a finding that if specified actions are taken to address an identified potential hazard then the effects of the site's geologic characteristics on the proposed development will be at an acceptable level and the effects of the proposed site modifications on the geologic conditions and processes in the immediate area are at an acceptable level.

2) Specific recommendations contained in the ~~geologic report~~Geologic Hazard Report shall be incorporated into the approved ~~geologic hazard permit~~Geologic Hazard Permit. Based on content, recommendations and conclusions of the geotechnical report, ~~the Director~~the decision-maker may apply other conditions to the issuance of a ~~geologic hazard permit~~Geologic Hazard Permit which are necessary to ensure compliance with the provisions of this section or with any other applicable provisions of the LAWDUC.
3) The specific recommendations contained in the ~~geotechnical report~~Geologic Hazard Report, and conditions applied to the ~~geologic hazard permit~~Geologic Hazard Permit shall be incorporated into the plans and specifications of the development which is the subject of the development permit.
~~4) Where there is not a concurrent application for a geologic hazard permit and a development permit for a specified development, the person(s) who prepared the geotechnical report shall submit a letter to the Director verifying that the proposed plans, details, and specifications of the proposed development have been reviewed and are in keeping with the recommendations contained in the geotechnical report that formed the basis for the issuance of the geologic hazard permit, or they shall make recommendations or changes that are needed in the proposed development in order to bring it into conformance with the recommendations contained in the geotechnical report.~~ [IS2]
~~5) When a geotechnical report submitted in conjunction with a development permit that is more than two years old, a letter shall be submitted to the Director from the person(s) who prepared the report. The letter shall provide verification that the geotechnical report is still valid for the proposed project.~~ [IS3]

Section 5.303~~3~~0. Independent Review
The Director, at his discretion and at the applicant's expense, may require an evaluation of a geotechnical report by another expert of his choosing. As part of its review of a land use application located in an area subject to Section 5.3010, the Hearings Officer, Planning Commission, or Board of Commissioners may also require, at the applicant's expense, an evaluation of a geotechnical report that was prepared in conjunction with the land use application. The results of that evaluation shall be used in making the final decision on the effected land use permit.

Section 5.3035. Development Standards
The review and approval of development permits in ~~the geologic hazard overlay district~~ areas subject to the requirements of this section shall be based on the conformance of the proposed development plans with the following ~~grading~~ development standards. Conditions of approval may be imposed on the development permit to assure that the development plan meets the standards of this section and to prevent the creation of a hazard to public or private property.

1) Site Plan Information Required~~.~~: In addition to the information required for a development permit, the site plan shall show where tree removal, clearing, grading, excavation or filling is to occur, the area where existing tree canopy and vegetative cover will be retained, the location of any streams and wetland areas on immediately adjacent to the property, and the general

direction of slopes. A statement shall be provided summarizing the extent of land clearing and grading and the quantity of cut and/or fill material involved.

2) Preparation of Grading Plan: Based on the findings and conclusions of the ~~geotechnical report~~Geologic Hazard Report, ~~or the nature of the proposed development, The Planning Director, at his sole discretion,~~the decision-maker may require that a grading plan prepared by a registered engineer be submitted with the application for a development permit. The ~~Planning Director~~decision-maker may require that such a grading plan, in addition to information required by Section 5.3035(1) include the following additional information:
   (A) Existing and proposed contours of the property, at two-foot contour intervals;
   (B) The location of the existing structures and building, including those within twenty- five feet of the property;
   (C) The location of all surface and subsurface drainage devices to be constructed; and
   (D) Design details of proposed retaining walls.
3) General Standards~~.~~: The proposed development plans shall meet the following general standards:
   (A) Natural vegetation and trees will be protected and retained wherever possible;
   (B) To the extent possible, roads and driveways shall follow the natural contours of the site; and
   (C) An erosion control plan shall be prepared and implemented in conformance with the requirements of Section 3.2000.
4) Cuts~~.~~: Proposed cuts shall meet the following standards:
   (A) The site development shall be designed to minimize the need for cuts.
   (B) The slope of cut surfaces shall not be steeper than is safe for the intended use and shall not be steeper than two horizontal to one vertical unless an engineering report finds that a cut at a steeper slope will be stable and not create a hazard to public or private property;
   (C) Cuts shall not remove the toe of any slope where a potential for landslide exists;
   (D) Cuts shall be setback from property lines so as not to endanger or disturb adjoining property; and
   (E) Retaining walls shall be constructed in accordance with the Oregon ~~State~~ Structural Specialty Code.
5) Fills~~.~~: Proposed fills shall meet the following standards:
   (A) The site development shall be designed to minimize the need for fill.
   (B) The slope of fill surfaces shall not be steeper than is safe for the intended uses and shall not be steeper than two horizontal to one vertical unless an engineering report finds that a steeper slope will be stable and not create a hazard to public or private property. Fill slopes shall not be constructed on natural slopes steeper than two horizontal to one vertical.
   (C) Fill shall be setback from property lines so as not to endanger or disturb adjoining property.

(D) The ground surface shall be prepared to receive fill by removing vegetation, noncomplying fill, topsoil and other unsuitable materials, and scarifying to provide a bond with the new fill.

(E) Structural fill shall be designed by a registered civil engineer in accordance with standard engineering practices.

6) Drainage~~.~~: The following standards shall be met:

(A) Proposed grading shall not alter drainage patterns so that additional storm water is directed onto adjoining property.

(B) Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.

(C) The site grading and drainage improvements shall be designed to carry both concentrated water and surface sheet flow water to the nearest practical drainage way, as specified by the ~~Planning Director~~decision-maker.

7) Certification of Compliance: Permitted development shall comply with the recommendations in the required Geologic Hazard Report. Certification of compliance shall be provided as follows:

(A) Plan Review Compliance: Building, construction or other development plans shall be accompanied by a written statement from a certified engineering geologist or licensed geotechnical engineer stating that the plans comply with the recommendations contained in the Geologic Hazard Report and all conditions of approval for the Geologic Hazard Permit.

(B) Inspection Compliance: Upon the completion of any development activity for which the Geologic Hazard Report recommends an inspection or observation by a certified engineering geologist or licensed geotechnical engineer, the certified engineering geologist or licensed geotechnical engineer shall provide a written statement indicating that the development activity has been completed in accordance with the applicable Geologic Hazard Report recommendations.

(C) Final Compliance: No development requiring a Geologic Hazard Report shall receive final approval (e.g., certificate of occupancy, final inspection, etc.) until the Community Development Department receives:

i. A written statement from a certified engineering geologist or licensed geotechnical engineer indicating that all performance, mitigation, and monitoring measures specified in the Geologic Hazard Report have been satisfied;

ii. If mitigation measures incorporate engineering solutions designed by a licensed professional engineer, a written statement of compliance by the design engineer;

iii. A written statement by the qualified licensed geo-professional indicating that all erosion control measure requirements were met.

8) Hazard Disclosure Statement: All new development or substantial improvements subject to a Geologic Hazard Permit shall provide a Hazard Disclosure Statement recorded with the Clatsop County Clerk's Office and signed by the property owner that acknowledges:

(A) The property is subject to potential natural hazards and that development thereon is subject to risk of damage from such hazards;

(B) The property owner has commissioned a Geologic Hazard Report for the subject property, a copy of which is on file with Clatsop County Community Development Department, and that the property owner has reviewed the Geologic Hazard Report and has thus been informed and is aware of the type and extent of hazards present and the risks associated with development on the subject property;

(C) The property owner accepts and assumes all risks of damage from natural hazards associated with the development of the subject property.

(D) The property owners shall refrain from interfering with mitigation measures or improvements on the site and shall maintain them.

~~**5.3040. GEOLOGIC HAZARD REQUIREMENTS**~~

~~**5.3045. Special Requirements for Hazard Areas**~~

~~The special requirements applicable in the Hazard maps in the Comprehensive Plan are set forth in Section 5.3040 to Section 5.3065. The general procedures and requirements for approving development in the district are contained in Sections 5.3000 through 5.3035 of this Ordinance. The standards in Section 5.3040 to Section 5.3065 shall be used in conducting such approvals.~~

~~**5.3050. Preliminary Site Investigation**~~

~~Subject to Sections 5.3000-5.3035.~~

~~**5.3055. Detailed Site Investigation for Geologic Hazard Areas**~~

~~Development in a Geologic Hazards Overlay District requires a detailed site investigation report if the preliminary site investigation report required in Section 5.3050 confirms existence of a geologic hazard area or is in a geologic hazard area identified by Martin Ross' report "A Field Inventory of Geologic Hazards from Silver Point to Cove Beach, Clatsop County, Oregon". The report shall contain the information listed below together with appropriate identification of information sources and the date of the information.~~

~~Before a development permit can be issued, the site investigation report must be approved as part of the development permit approval process. The approved site investigation report shall be referred to in the deed and other documents of sale and shall be recorded with the record of deeds.~~

~~1) Background Data in Report. The site investigation report shall contain the following background information:~~

~~(A) The methods used in the investigation and the approximate number of man-hours spent on the site.~~

~~(B) A general analysis of the local and regional topography and geology including the faults, folds, geologic and engineering geologic units and any soil, rock and structural details important to engineering or geologic interpretations.~~

~~(C) A history of problems on and adjacent to the site, which may be derived from discussions with local residents and officials and the study of old photographs, reports and newspaper files.~~

(D) The extent of the surface soil formation and its relationship to the vegetation of the site, the activity of the land form and the location of the site.

(E) The following ground photographs of the site with information showing the scale and date of the photographs and their relationship to the topographic map:

1. A view of the general area.
2. The site of the proposed development.
3. Any features which are important to the interpretation of the hazard potential of the site.
4. Unusual natural features and important wildlife habitat.

2) Topography Map. a topography base map of (1 to 100) scale and with a contour interval of (two feet) shall be prepared identifying the following features and shall be accompanied by references to the source and date of information used.

(A) The position of the lot line.

(B) The boundaries of the property.

(C) Species identification of major plant communities.

(D) Any springs, streams, marshy areas or standing bodies of water.

(E) Areas subject to flooding, including those shown on the flood hazard maps prepared under the HUD National Flood Insurance Program.

(F) Areas subject to stream erosion and areas exhibiting significant surface erosion due to improper drainage and runoff concentration.

(G) Geological information, including lithologic and structural details important to engineering and geologic interpretation.

3) Subsurface Analysis. If upon initial investigation it appears there are critical areas where the establishment of geologic conditions at depth is required, a subsurface analysis obtained by drill holes, well logs and other geophysical techniques shall be conducted by the person responsible for the site investigation report to include the following data as appropriate.

(A) The lithology and compaction of all subsurface horizons to bedrock.

(B) The depth, width, slope and bearing of all horizons containing significant amounts of silt and clay and any other subsurface waters.

(C) The depth, bearing and capacity of seasonal and permanent aquifers.

(D) Underlying areas of buried vegetation.

4) Development Proposal. The site investigation report shall include the following information on the proposed development as applicable. The information will be shown on the maps described above or appropriately referenced.

(A) Plans and profiles showing the position and height of each structure, paved area and area where cut and fill is required for the construction.

(B) The percent and location of the surface of the site which will be covered by impermeable or semi-impermeable surfaces.

(C) Points to preserve for public access.

(D) a description of the impact of the development on any critical biological habitats.

(E) A stabilization program for the development describing:

1. how much of the site will be exposed during construction and what measures will be taken to reduce erosion.
2. a revegetation program designed to return open areas to a stable condition as soon as possible following construction.
3. the time of commencement of revegetation planting.

(F) a description of safeguards that will be provided as part of the proposed development.

(G) For a logging or farming operation, areas to be protected from vegetation loss or groundwater pollution shall be identified and means for protection described.

5) Special Review for Water Supply or Sewerage. If a well or an on-site sewage disposal system is planned, the proposed location shall be described and the following shall be determined:

(A) The maximum and minimum levels (seasonal extreme) in water table height.

(B) The expected water needs of the proposed development.

(C) The water supply capacity and the expected effect of the increased water consumption on the water table.

(D) Any detrimental contamination of the groundwater, lakes or marshes that may occur.

6) Conclusions in the Report.

(A) The site investigation report shall contain conclusions stating the following:

1. How intended use of the land is compatible with the existing conditions.
2. The existing or potential hazards found during the investigation.
3. The manner for achieving compliance with applicable development criteria and standards.

(B) Recommended safeguards and mitigation for specific areas and hazards shall be specified.

(C) Conclusions shall be based on data included in the report and the sources of information and facts shall be referenced.

5.3060. Site Investigation Report Review

The Community Development Director, Planning Commission or Board of Commissioners may want to have a technical site investigation report reviewed including the methods actually used to avoid hazards. The Community Development Director, Planning Commission or Board of Commissioners may request the owner or developed to pay for a portion or all of the review on behalf of the County.

5.3065. Qualifications

The site investigation report shall be conducted by a registered engineering geologist. The Department of Community Development shall maintain a list of qualified geologists.